

We claim:

1. An anomaly detector apparatus for detecting an anomaly in a tire comprising:

a source of coherent light to shine the light directly onto the tire surface with the light being reflected from the tire;

a stressing apparatus, which can stress the tire;

a reflected light receiving apparatus for receiving the light reflected directly from the tire when the tire is in a stressed and unstressed condition;

a processor, which compares images of reflected light from the reflected light receiving apparatus when the tire is stressed and unstressed thereby ascertaining an anomaly in the tire and which generates an output from the comparison; and

a display apparatus electronically connected to the processor for displaying the output from the processor.

2. The apparatus of claim 1 wherein the light does not pass through a birefringement material or a shearing optic material.

3. The apparatus of claim 1 where the source of light is a laser.

4. The apparatus of claim 1 further comprising a diffuser placed between the source of light and the tire to distribute the light over a portion of the tire surface.

5. The apparatus of claim 1 further comprising a diffuser placed between the source of light and the tire to distribute the light over a portion of the tire with even distribution.

6. The apparatus of claim 1 wherein the reflected light receiving apparatus is a camera.

7. The apparatus of claim 6 wherein the camera is electronically connected to a computer.
8. The apparatus of claim 1 wherein the processor is software operating in a computer which displays the output.
9. A method of detecting an anomaly in a tire comprising:
 - providing a source of coherent light;
 - shining the light directly onto the tire surface, thereby generating a reflected light from the tire;
 - stressing the tire;
 - providing a reflected light receiving apparatus for receiving the light reflected directly from the tire when the tire is in a stressed and unstressed condition;
 - providing a processor which views and compares images of reflected light from the reflected light receiving apparatus when the tire is stressed and unstressed thereby ascertaining an anomaly in the tire and generates an output from the comparison; and
 - displaying, from apparatus electronically connected to the processor, the output from the processor.
10. The method of claim 9 wherein the light does not pass through a birefringement material or a shearing optic material.
11. The method of claim 9 where the source of light is a laser.
12. The method of claim 9 further comprising distributing the light over a portion of the tire by a diffuser placed between the source of light and the tire.

13. The method of claim 9 further comprising distributing the light over a portion of the tire with even distribution of light by a diffuser placed between the source of light and the tire.
14. The method of claim 9 wherein the reflected light receiving apparatus is a camera.
15. The method of claim 14 further comprising passing the images from the camera to a computer.
16. The method of claim 9 wherein the processor is software operating in a computer which displays the output.
17. The product of the method of claim 9.
18. An image of an anomaly of a tire comprising
the output from a computer wherein the output is from a reflected diffused beam of a source of coherent light shown directly onto a tire surface which tire surface has had the light shown on it when the tire is in a stressed and unstressed condition;
an output is the result of comparing the reflected light shown onto the tire in a stressed and unstressed condition or in multiple stressed conditions; and
the output is characterized as a single image of the anomaly obtained from the diffused beam of coherent light shown onto the tire.
19. The image of claim 18 wherein the light does not pass through a birefringement material or a shearing optic material.
20. The image of claim 18 scaled to size the anomaly in the tire.
21. The image of claim 18 where it is characterized as a scattered speckle reflection.

22. The image of claim 18 wherein the source of light is passed through a diffuser before the light shines on the tire surface.
23. The image of claim 18 wherein the output is black on white or white on black.
24. The image of claim 18 wherein the output is in multiple colors to enhance visibility of the image.